

# CHLORIDE

## POWER PROTECTION

### Active and E-Series Uninterruptible Power Supply Operating Manual

- 700 VA
- 1000 VA
- 2000 VA
- 3000 VA
- 6000 VA
- 10000 VA
- 20000 VA
- 700 VA Rackmount
- 1000 VA Rackmount
- 2000 VA Rackmount
- 3000 VA Rackmount

# CHLORIDE

## POWER PROTECTION

### Active™ and E-Series™ User Instruction Manual

## IMPORTANT SAFETY INSTRUCTIONS

## SAVE THESE INSTRUCTIONS.

Please read and save these instructions. This manual contains important instructions for Chloride models:

- Active700
- Active1000
- Active2000
- Active3000
- BPAActive1000
- BPAActive3000
- Active700-19
- Active1000-19
- Active2000-19
- Active3000-19
- BPAActive1000-19
- BPAActive3000-19
- E61XA (E41XA)
- E101XA (E81XA)
- E203XA (E153XA)
- BPE61
- BPE101

Follow these instructions during installation and maintenance of the UPS and batteries.

If you have a problem with the UPS, please refer to this manual before calling the Technical Support Department. The Troubleshooting section on pages 20 and 53 address most UPS-related issues.

### FCC Compliance



**ATTENTION:** Changes or modifications to this unit not expressly approved by the party responsible or in FCC compliance could void the user's authority to operate the equipment.

This equipment was tested and complies with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the UPS is operating in a commercial environment. The UPS generates, uses, and can radiate radio frequency energy. If installation and use is not in accordance with the instruction manual, it may cause harmful interference to radio communications.



**ATTENTION:** Operation of this equipment in a residential area may cause harmful radio communications interference. The user is responsible for correcting the interference.

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Lake Forest, IL 60045  
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# Chapter 1 Chloride Introduction

Thank you for selecting this uninterruptible power supply (UPS). Chloride's Active UPS offers the most reliable protection from the harmful effects of electrical line disturbances for your computing and communications equipment.

## 1.1 Registering your Chloride Active UPS

To ensure that your Active model and serial number are registered, complete and mail the enclosed postage-paid warranty card.

## 1.2 Technical Support and Service (Active)


Chloride offers 24-hour technical support. To contact Chloride Technical Services:


- Phone: (800) 879-5011
- email: [usa.service@chloridepower.com](mailto:usa.service@chloridepower.com).

**NOTE:** All calls received before 7 a.m. or after 7p.m. Central Standard Time are forwarded to a cell phone. A Chloride Technical Service Representative will return your call within one half hour between 5 p.m. and 10 p.m. Central Standard Time. Except for emergencies, calls received between 10 p.m. and 7 a.m. will be returned during normal business hours.


Please check with Chloride Technical Services before attempting to repair or return any Chloride product. If a Chloride unit needs repair or replacement, Chloride Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

## 1.3 Safety Notes


 **WARNING:** Read the following information carefully! Disregard of these safety notes may endanger your life and health as well as the functioning of your equipment and the safety of your data.

 **WARNING:** This equipment services power from more than one source. The output receptacles may have voltage even when the unit is unplugged.


UPSs present a different safety issue than most electrical equipment because unplugging the UPS puts it into backup mode. Unplugging the UPS does not remove the electrical charge. To ensure that the UPS is off, push BYPASS (for a minimum of 1 second) before unplugging the UPS from the mains.

 **CAUTION:** Operating this equipment without proper grounding may present a risk of electrical shock.

Do not use AC adaptors with only two conductors to connect the input line cord to the wall socket as this will not connect the earth ground to the equipment.

 **WARNING:** Dangerous voltages are present within this unit! There are no user-serviceable parts inside. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical code.

This device complies with the relevant safety regulations for uninterruptible power supplies for use in a controlled office environment. If you have any questions, please contact Chloride Technical Service at 1- 800-879-5011.

- Transport the unit only in suitable packaging (protect against jolts and shocks).
- If the equipment is moved indoors from a cold environment, condensation may occur. Before you place the equipment in service it must be absolutely dry. An acclimatization period of at least two hours is required.
- This equipment must be installed in an indoor, temperature controlled environment that is free of conductive contaminants. See chapter 10, “Active Tower and Rackmount Specifications” on page 22 for specific environmental limits.
- The Active equipment has a safety-tested power cable and may only be connected to a properly grounded receptacle.
- The switch  (see chapter 2, “Display and Operation Elements (Active)” on page 3) does not isolate the device (UPS) from the mains. To isolate completely from the mains, the main switch must be switched off and the power plug disconnected.

***CAUTION:** Removing mains power may not remove power from the device (UPS) output. See instructions above to properly remove power from output.*

- In case of interruption of the mains voltage, the integrated battery maintains the power supply to the connected equipment.
- Lay all cables so that nobody can stand on them or trip over them. When connecting the device to the power supply, follow the instructions in the chapter on “Active Installation and Commissioning” on page 11.
- No data transmission lines should be connected or disconnected during a thunderstorm.
- Make sure that no objects (e.g. pins, necklaces, paper clips, etc.) get inside the device.
- In emergencies (e.g. damaged case, controls or power cables, penetration of liquids or foreign matter) put the device into BYPASS, disconnect the power plug and contact Chloride Technical Services at 1-800-879-5011.
- Do not connect equipment that will overload the UPS (e.g. laser printers or vacuum cleaners) or demand DC-current (e.g. half-wave rectifiers or hair dryers).
- When cleaning the unit, follow the instructions in chapter 7, “Maintenance (Active)” on page 19.
- The sum of the leakage currents (protective conductor current) of the UPS and the connected devices must not exceed 3.5 mA for the types Active 700, 1000, 2000 and 3000.

Chloride Active UPS is UL listed under UL1778 for North American units.

## Chapter 2 Display and Operation Elements (Active)

The Uninterruptible Power System (UPS) is connected between AC power and the load. It protects the load against mains disturbances, especially power failures.

Its operation is based on the on-line principle. The connected load is supplied power through the UPS's inverter. Power disturbances from the mains are suppressed which increases the loads' operational security (PC, network server, multi-user systems etc.)

In the event of a mains failure, maintenance-free batteries provide an uninterrupted supply of energy. In practice, mains failures are of relatively short duration, dependent on the mains quality. Therefore, the UPS' energy is in most cases sufficient to ensure continuous operation of the connected systems, until the mains is reestablished. In the event of a longer lasting mains failure it allows for controlled shutdown of connected systems.

The UPS indicates by acoustical (buzzer) and optical (LED) alarms that a mains failure has occurred and is still persistent. Battery runtimes vary depending upon load, number of batteries and environmental conditions.

The following chart shows the approximate values of the emergency runtime (assuming fully charged battery at the onset of the mains failure.)

	Load in %	A700	A1000	A2000	A3000
OVERLOAD	>105				
	95-105	6 min	7 min	10 min	6 min
LOAD	75-95	7 min	8 min	11 min	7 min
	55-75	10 min	11 min	16 min	10 min
	35-55	15 min	17 min	24 min	15 min
	1-35	28 min	33 min	37 min	28 min

- The actual battery capacity can be read from the LED-"battery" chain (see table below).

Battery Capacity	
Battery	1 - 35%
	35 - 55%
	55 - 75%
	75 - 95%
	95 - 100%

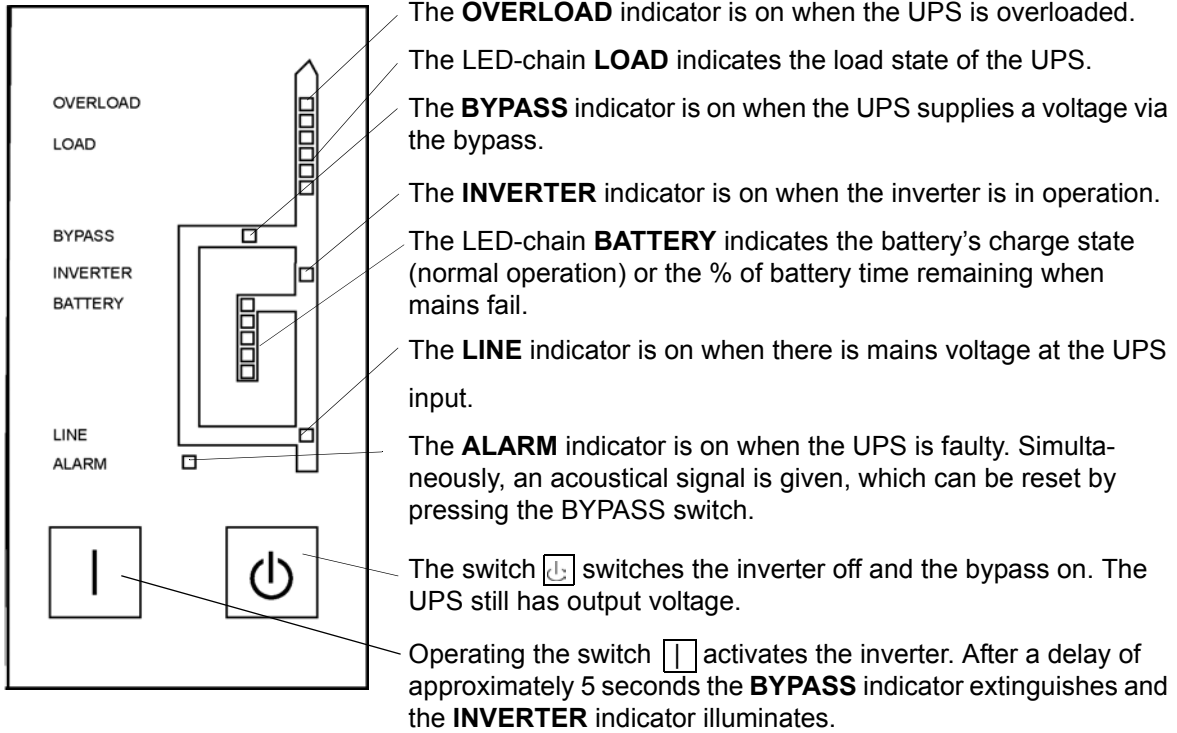
The most reliable method for determining actual battery runtime is the application of Chloride MopUPS<sup>®</sup> software. With this software, the prospective remaining battery capacity is indicated before and during an AC power failure. Furthermore, shutdown procedures can be automated. Depending on the application program, operating system and computer hardware, it can be ensured that in the event of a power failure the application programs are automatically closed, the subscribers logged in at the server are logged out, the data is stored and the operating systems are shut down. For further information please refer to our publication about the Chloride ManageUPS<sup>™</sup>NET SNMP Adapter.


After return of the mains voltage, the UPS automatically initiates a restart. The connected systems are restarted according to their specifications.

In the event of overload or internal failure, the load is supplied from the mains via an automatic bypass. As soon as the normal status is reestablished, automatic switchover to inverter operation is performed.

This operation manual contains all relevant information to install and operate the UPS.

## 2.1 Front



**NOTE:** To switch from *BYPASS* to *INVERTER*, press the  switch for at least 1 second. (A tone sounds confirming the switch).



## 2.2 Rear

### 2.2.1 Active 700 and 1000

Selector switch - for output voltage. The selection of the output voltage must be made with the UPS switched off and unplugged.\*

Input fuse - the fuse may only be changed when the device is switched off and unplugged.\*

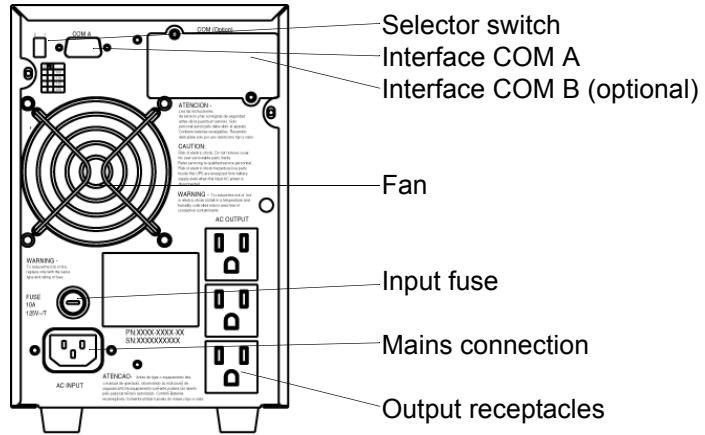


Fig. 1: Active 700 Rear View

Selector switch - for output voltage. The selection of the output voltage must be made with the UPS switched off and unplugged.\*

Input fuse - the fuse may only be changed when the device is switched off and unplugged.\*

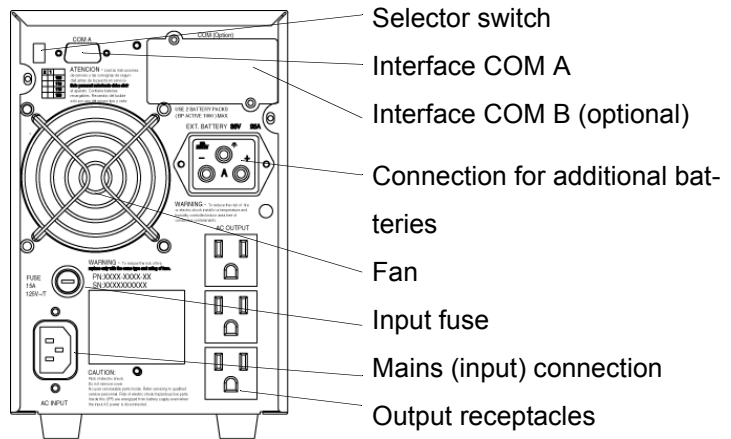


Fig. 2: Active 1000 Rear View

\* Call Chloride Technical Services for information on setting output voltages (1-800-879-5011).

## 2.2.2 Active 2000 and 3000

Selector switch - for output voltage.  
The selection of the output voltage must be made with the UPS switched off and unplugged.\*

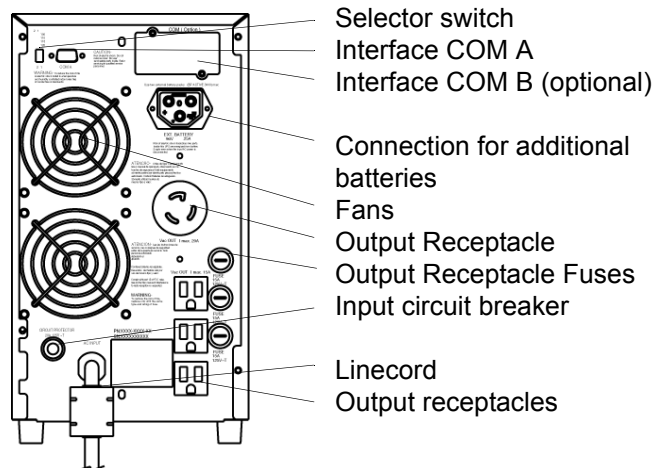


Fig. 3: Active 2000 Rear View

Selector Switch - for output voltage  
The selection of the output voltage must be made with the UPS switched off and unplugged.\*

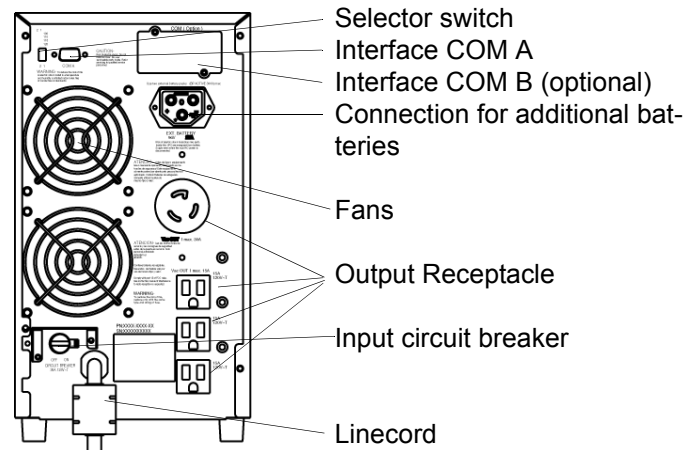


Fig. 4: Active 3000 Rear View

\* Call Chloride Technical Services for information on setting output voltages (1-800-879-5011)

## Chapter 3 Active Rackmount Series

The technical data of the Active Rackmount UPS corresponds to the standard unit series Active, except for the details which are explained below. The Active Rackmount consists of the following types:

- Active700-19, with 700 VA nominal rating
- Active1000-19, with 1000 VA nominal rating
- Active2000-19, with 2000 VA nominal rating
- Active3000-19, with 3000 VA nominal rating,
- BPAActive1000-19
- BPAActive3000-19

The above listed units with a mounting height of 2 U (2 U = 3.50 inches) are designed for installation in a standard 19-inch industrial rack.

### 3.1 Safety

#### 3.1.1 Intended use

This system, called “unit” in the following text, serves as an uninterruptible power supply of connected loads in a 19-inch rack. In certain configurations battery packs are part of the unit. These battery packs may only be connected electrically with the corresponding base unit.

#### 3.1.2 Further safety notes

- When mounting the unit into a rack, it has to be attached on both sides and the front plate of the unit has to be fixed to the rack by screws.
- There may be connected:
  - up to 2 battery packs to the Active1000-19.
  - up to 5 battery packs to the Active2000-19 or Active3000-19.
- The vents for air intake and outlet at the front and rear side must not be obstructed.

### 3.2 Installation and operating notes

#### 3.2.1 Selection of the mounting location

The Active Rackmount units are designed to be mounted in a 19-inch rack. When installing the UPS, please consider the heavy weight of some components. Preferably, they should be installed in the lower section of the rack. UPS systems consisting of several components must be installed so that the battery packs are mounted in the lower section with the UPS mounted directly above them.

### 3.2.2 Mechanical Attachment

The units must be attached in the rack on both sides. When using the attached mounting rails, the single unit can easily be inserted into a 2 U mounting space or removed from it. In order to attach the unit in the horizontal position, the front-plate has to be attached to the 19-inch rack at the indicated points on both sides of the unit.

Do not attach the unit only at the front-plate. This may damage the unit and/or other mounted units.

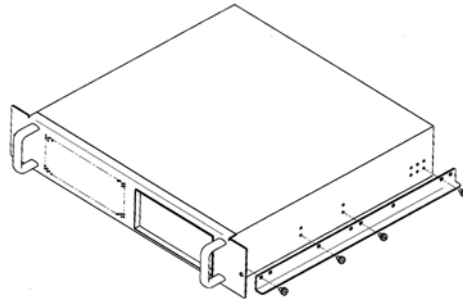


Fig. 5: Mounting the rails at the body of the UPS or Battery-Pack.

The following table shows the maximum configuration.

Table 1. Battery Cabinets

UPS	Type of Battery Packs	Maximum Number of Packs
Active700-19	None	None
Active1000-19	BPAActive1000-19	2 units
Active2000-19	BPAActive3000-19	5 units
Active3000-19	BPAActive3000-19	5 units

### 3.2.3 Connection of a battery pack

**NOTE:** Before connecting a battery pack to the UPS, the miniature circuit breaker of the battery pack must be switched to “OFF.” After electrical connection with the UPS, this breaker has to be switched “ON.”

**NOTE:** The Active2000-19 and Active3000-19 have no internal batteries.

### 3.3 Unit Rear View and Connections

#### 3.3.1 Active 700-19 and Active 1000-19

The following figures show the Active700-19, Active1000-19, Active2000-19 and Active 3000-19 with battery extensions.

**NOTE:** No battery extension can be connected to the 700 VA unit.

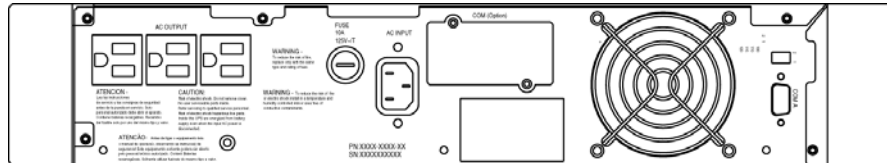


Fig. 6: Active700-19

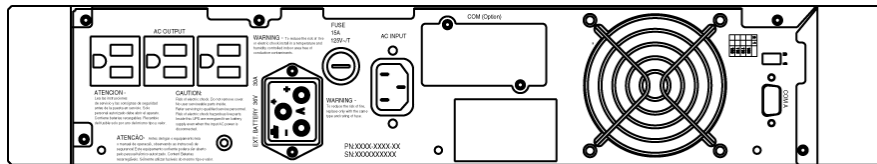


Fig. 7: Active1000-19

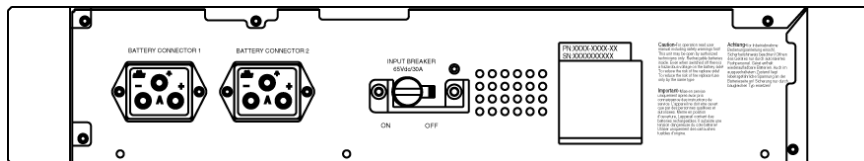


Fig. 8: Battery Pack - BPAActive1000-19

To connect the battery pack to the unit, use the separate cable supplied.

### 3.3.2 Active 2000-19 and Active 3000-19

**NOTE:** Each battery cabinet BPActive3000-19 contains two battery connections. The first battery pack is connected to the battery cables of the UPS, each further extension is connected by means of the two cables. Each cable is non-interchangeable, because the sockets are coded.

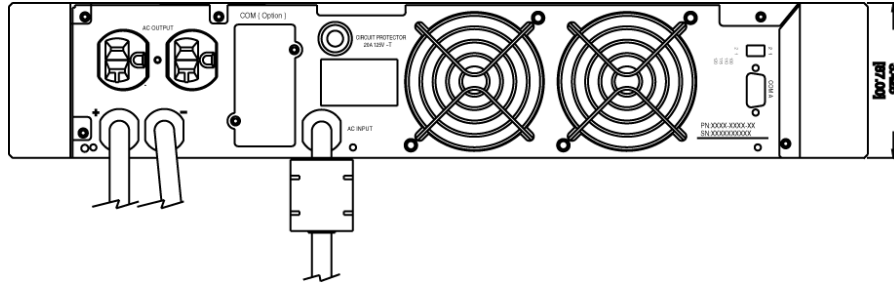


Fig. 9: Active2000-19

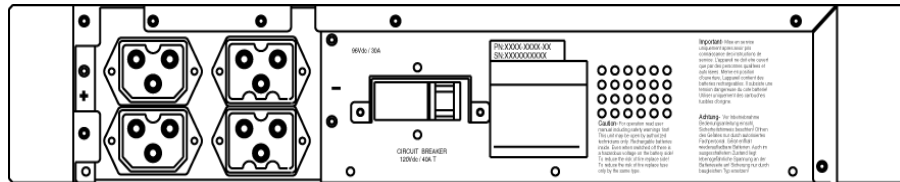


Fig. 10: Battery Pack - BPActive3000-19

### 3.3.3 Active3000-19

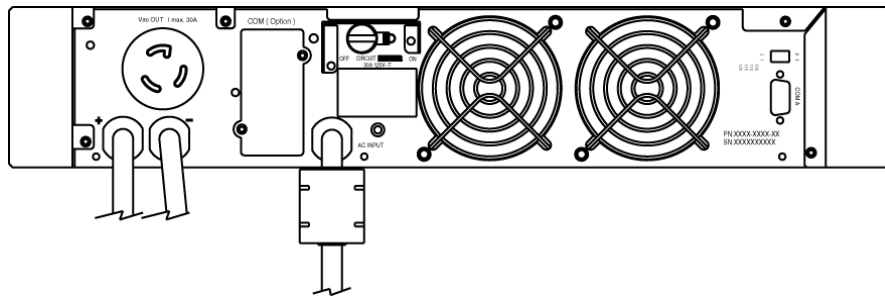


Fig. 11: Active3000-19

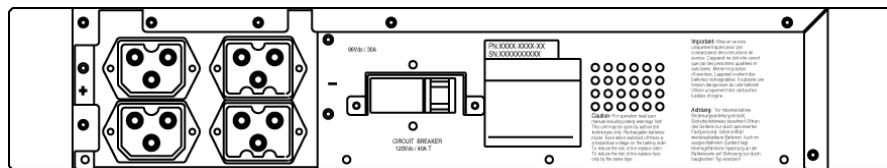


Fig. 12: BPActive3000-19

## Chapter 4 Active Installation and Commissioning

Upon receipt of your UPS, carefully examine the packing containers for any sign of physical damage. Notify the carrier immediately if damage is present. Carefully unpack the UPS. Retain the packaging for reuse or disposal.

***NOTE:** If damages are detected, please inform the shipping agent immediately.*

UPS includes:

- UPS device
- Connection cable for the UPS input
- Output receptacles are on the UPS

## 4.1 Commissioning of an External Battery Cabinet

The following table shows the designations of the battery cabinets which are available for the UPS devices.

Table 2. External Battery Packs

Model	Cabinet	Batteries
Active 700	NA	NA
Active 1000	BPActive1000-19	2x (3 x 7.2 Ah)
Active 2000	BPActive3000-19	2x (8 x 7.2 Ah)
Active 3000	BPActive3000-19	2x (8 x 7.2 Ah)

Disconnect the UPS from the mains and the loads from the UPS.

**⚠ CAUTION:** Make sure that the circuit breaker on the external battery cabinet is in the OFF position.

**⚠ CAUTION:** Battery cabinets are not interchangeable. Use ONLY the battery cabinet indicated above.

Connect the battery cabinet types BP1000, BP3000 to the UPS using the supplied cable. The connection scheme is shown in the figures below. Switch the circuit breaker on the battery cabinet to the ON position.

The UPS is now ready for operation.

**NOTE:** Battery charging times may be longer when using an external battery cabinet.

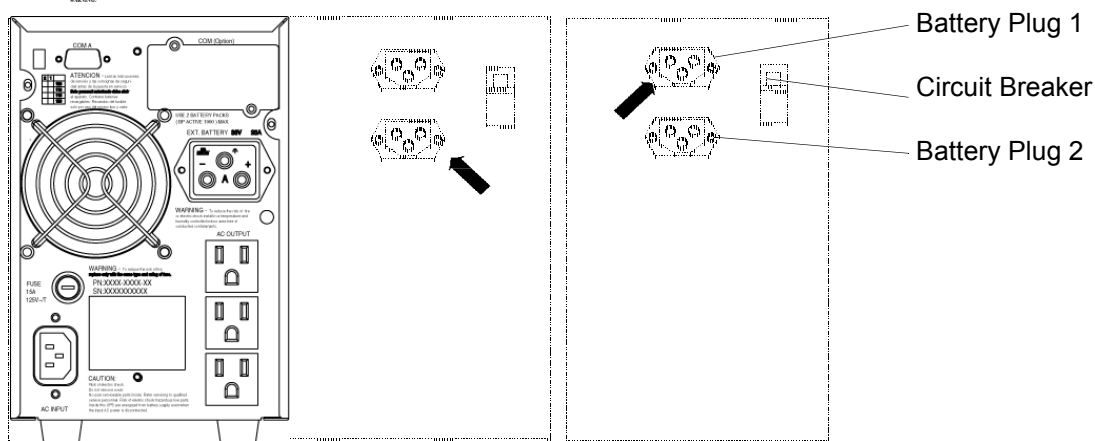


Fig. 13: Connection of Battery Extensions for devices Active 1000

**⚠ WARNING:** The connection of the external battery cabinet may only be done by qualified personnel in accordance with the applicable safety regulations.

**⚠ CAUTION:** For the electrical installation, the maximum load capacity of the connection cable has to be taken into account.



## Chapter 5 Operational Characteristics (Active)

### 5.1 Ready for Operation Check

To check the emergency supply feature of the UPS, it must be disconnected from the mains.

When correctly functioning with charged batteries, an acoustical signal in intervals of 4 seconds will be heard. The LED “LINE” (line voltage) indicator disappears. When the interval between the acoustical signals is reduced to 1 second, the UPS will supply energy for a maximum of 3 more minutes before it is automatically switched off.

The load will be supplied from the batteries during the specified emergency supply period. If this is not so, then please check in chapter 8 “Troubleshooting (Active)” on page 20.

Reconnect the UPS with the mains.

The UPS is now again ready for normal operation. Please note, that the batteries have to be recharged before the complete emergency supply period is again available.

### 5.2 Self Test

The self test is a LED test.

With the UPS connected to the AC power, switch  has to be operated for at least 1 second.

- Acknowledgment of the input is given by a single acoustical signal.
- The elements of the LED “BATTERY” chain are illuminated according to the battery’s load status. The “LINE” and “BYPASS” indicators are illuminated.
- Initially all elements of the LED “LOAD” chain are illuminated. Beginning with the top indicator, all elements of this chain will extinguish one after the other. Thereafter the elements are on according to the UPS load status.
- The “BYPASS” indicator turns off after approximately 5 seconds and the “Inverter” indicator illuminates. The load is supplied through the inverter, the energy is taken from the mains.

## 5.3 Modes of Operation

There are three modes of operation, when the UPS is switched on.

### 5.3.1 Normal Operation, Inverter On (Mains Available)

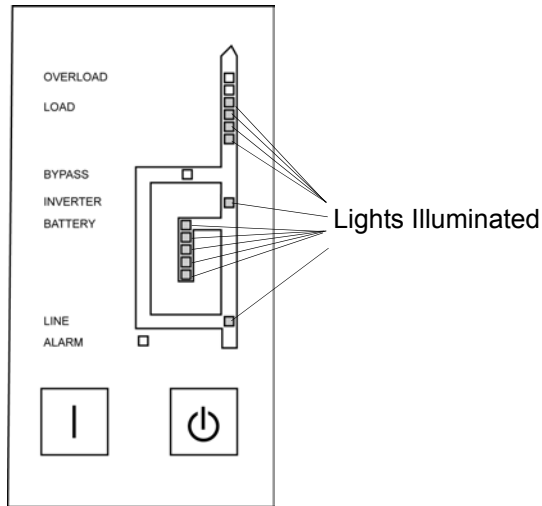


Fig. 14: Front Display Panel During Normal Operations (Mains Available)

The loads are supplied through the inverter, the energy is taken from the mains.

### 5.3.2 Battery Operation, Inverter On (Mains Failure)

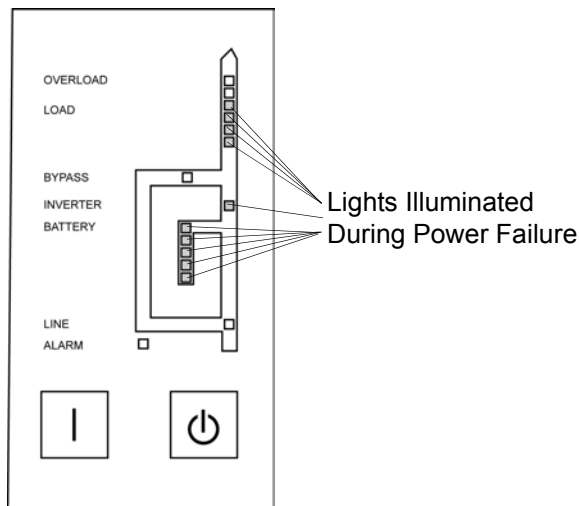


Fig. 15: Front Display Panel During Battery Operation (Mains Failure)

In the event of a mains failure, the inverter continues to supply the loads without interruption, the energy is taken from the battery.

In this operation mode, an acoustical signal is given in intervals of approximately 4 seconds. When reaching the battery's energy minimum, this signal is given at one second intervals.

**5.3.3 Bypass Operation, Inverter OFF (Overload > 140%)**

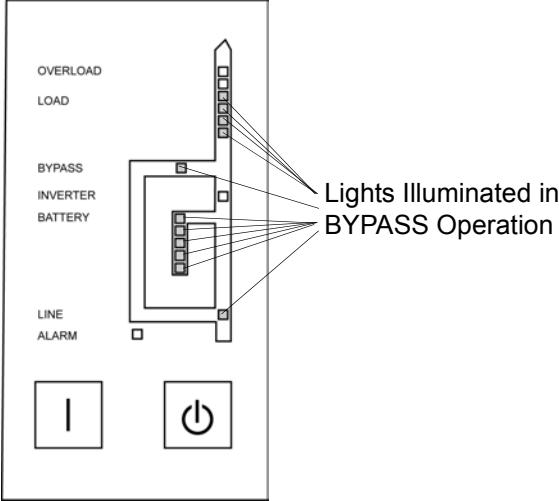


Fig. 16: Front Display Panel During Bypass Operation (Overload > 140%)

In the event of large overload (> 140%) switch-over to bypass is initiated and the inverter is blocked. The energy is taken from the mains.

This is not a normal operating status. In the event of mains failure the loads will no longer be supplied (no UPS operation).

## Chapter 6 Description of the Interface (Active)

The Active UPS has a standard interface COM A and an optional interface COM B. Protocol data transfer signal exchange is through COM A RS232 interface or the optional interface (COM B).

These interfaces can be used for:

- Direct communication between UPS and a computer.
- Integration of the UPS as client into a network with centralized monitoring.
- Transfer of operational states to external alarm systems.

The necessary communication software packages and interface cables are available as accessories.

### 6.1 Standard Interface COM A

The 9-pin SUB-D connector (pin contacts) contains the RS 232 signals, 5 output signals and 1 input signal. The RS232 signal RXD can also be used as input signal, when the sequential interface is not used.

The 5 alarm outputs are open-collector outputs.

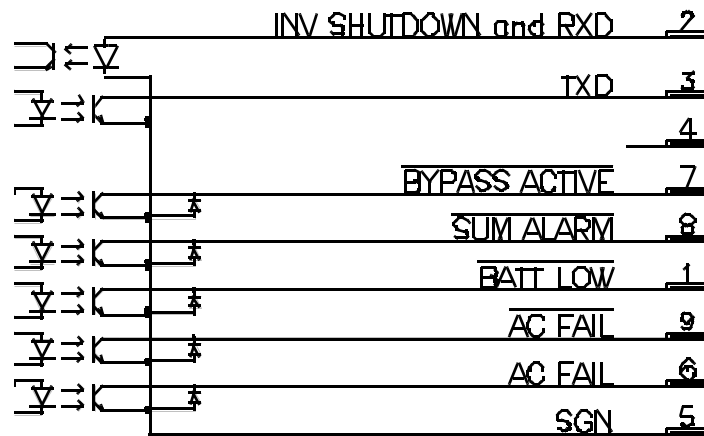


Fig. 17: COM A signal Definition and Connection

The interface COM A is galvanically separated from all other circuits.

Table 3. Interface COM A

Pin Number	Condition
SGN at pin 5	This connection point serves as a reference for all signals.
RXD at pin 2 and TXD at pin 3	In conforms standard RS232 configuration.
INV SHUTDOWN at pin 2	This input (pin 2: High signal +5V...+12V, t <sub>S</sub> 1 second, pin 5: 0V) enables the control processor to switch off the UPS in the event of a mains failure. After the mains has been reestablished, the UPS starts again independent of this signal status.
BATTERY LOW at pin 1	This output goes low, when the battery can supply current for approximately 3 more minutes at nominal load.
AC FAIL at pin 9 and AC FAIL at pin 6	Pin 9 goes low and pin 6 goes high for mains voltage failure at the UPS input for a minimum of 10 seconds or when the mains voltage moves beyond the tolerance band. The signal is reset 850 ms after the mains have been reestablished.
BYPASS ACTIVE at pin 7	This signal goes low after switching over to bypass, blocking the inverter and the energy being supplied by the mains
SUM ALARM at pin 8	This output is low, when one of the alarms "BATTERY LOW", "AC FAIL" or "BYPASS ACTIVE" is given.

## 6.2 Optional Interface COM B

The optional interface COM can be equipped with various interface cards. The designation beside the plug then depends on the type of interface card.

In Figure 18, the function of the interface signals for version COM B is described. The optional interface COM B provides potential-free signalling contacts and a shutdown input and an insulated auxiliary supply.

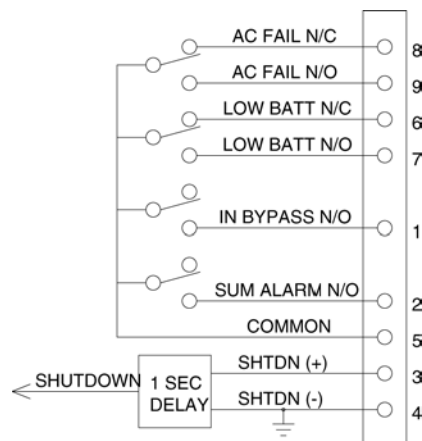


Fig. 18: Simplified Schematic of Interface Connections

### Troubleshooting Optional Interface COM

## **INV SHUTDOWN**

This input (pin 3) is enabled with a high signal (+5 V to +12 V with respect to pin 4 (0 V)) and when enabled, switches off the UPS after a mains failure has occurred. After the mains has been reestablished, the UPS starts again independent of this signal status. This input must be high for one (1) second before shut off will occur.

## **AC FAIL**

This output provides an N/O (Normally Open) contact between pins 9 and 5, and an N/C (Normally Closed) contact between pins 8 and 5. The 9-5 contact closes when the mains voltage fails at the UPS input or when the mains voltage falls below the lower limit for a minimum of 10 seconds. This contact opens approximately 850 ms after the mains have been reestablished. The 8-5 contact provides a mirror function, opening when the mains voltage fails and closing when mains power returns.

## **LOW BATT**

This output provides a N/O contact between pins 6 and 5 and an N/C contact between pins 7 and 5. The 6-5 contact closes when the battery has been depleted to the point that it can only supply current for approximately three (3) more minutes at nominal load. The 7-5 contact provides a mirror function opening when the battery is low.

## **BYPASS ACTIVE**

This output provides an N/O contact between pins 1 and 5. The 1-5 contact closes after switching to the bypass mode. In the bypass mode, energy to the output of the UPS is being supplied by the mains power and not through the inverter.

## **SUM ALARM**

This output provides an N/O contact between pins 2 and 5. The 2-5 contact closes when one of the alarms “AC FAIL,” “LOW BATT” or “BYPASS ACTIVE” is active or when the indication “ALARM” at the front-panel is on.

## Chapter 7 Maintenance (Active)

The UPS does not require maintenance by the user. When the battery expires, the UPS or the battery must be replaced by qualified electrical personnel.

The typical battery's lifetime is 4 years at an ambient temperature of 25 °C. This may vary greatly depending upon load conditions, number of outages, and environmental factors.



**NOTE:** Check periodically (6 to 12 months), to see whether the emergency supply time of the UPS is still sufficient for its application (See "Ready for Operation Check" on page 13.).

### 7.1 Storage

For extended storage in moderate climates, the batteries should be charged for 8 hours every three months. Repeat it every two months in high temperature locations.

1. Connect the UPS to a grounded receptacle.
2. Pull out the mains plug after 8 hours.
3. Note the date of charging on the packing.

### 7.2 Cleaning

 **CAUTION:** Press the  switch on the front panel and pull the plug out of the mains receptacle.

Do not use scouring powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to get inside the UPS.

Make sure that the air vents on the UPS are not obstructed.

Clean the outside of the UPS housing by wiping with a dry or a slightly damp cloth.

## Chapter 8 Troubleshooting (Active)

If a problem occurs in spite of the high reliability of the device, please review the following checks before calling Chloride Technical Services.

- Is the UPS plugged into a correctly working grounded receptacle
- Has the fuse blown or have circuit breakers tripped?

Please note the following information when you call for service:

- Information about the device (model number, serial number from serial plate)

Full description of problem (connected loads, does the problem occur regularly or sporadically, display indicators/alarm etc.)

Table 4. Troubleshooting

Problem	Possible Cause	Action to Take
No indication. No alarm.	Main switch is OFF.	Switch on main switch.
	No mains voltage available.	Have mains checked by qualified electrical personnel.
	Input fuse has blown or input circuit breaker has tripped.	Replace fuse by identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
	External batteries are not connected when powered.	Unit will not run without batteries. Confirm proper battery connection.
LINE Indicator is not on, acoustical alarm is given in intervals.	Mains failure.	Normal UPS operation (see also "Operational Characteristics (Active)" on page 13).
LINE Indicator is not on, although mains voltage is available, acoustical alarm is given in intervals.	Input fuse has blown or input circuit breaker has tripped.	Replace fuse with identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
ALARM Indicator is on, continuous acoustical alarm.	UPS failure.	Press BYPASS switch, then ON switch. If normal operation does not occur, call Technical Services.
	Over temperature.	Reduce ambient temperature.
Emergency supply time is shorter than specified.	Batteries are not completely charged.	Charge batteries ("Active Installation and Commissioning" on page 11) and test emergency supply time. If problem persists, then call Technical Services.
	Batteries are defective or reached the end of its useful life.	
	Charging device is faulty.	
OVERLOAD LED indicator is on.	Overload at the UPS output.	Reduce load to the permissible value.



## Chapter 9 Technical Support for your Active UPS

### 9.1 Chloride Technical Support

Chloride offers 24-hour technical support. To contact Chloride Technical Services:

- Phone: (800) 879-5011
- email: [usa.service@chloridepower.com](mailto:usa.service@chloridepower.com)

***NOTE:** All calls received before 7 a.m. or after 7p.m. Central Standard Time are forwarded to a cell phone. A Chloride Technical Support Representative will return your call within one half hour between 5 p.m. and 10 p.m. Central Standard Time. Except for emergencies, calls received between 10 p.m. and 7 a.m. will be returned during normal business hours.*

Please check with Chloride Technical Services before attempting to repair or return any Chloride product. If a Chloride unit needs repair or replacement, Chloride Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

## Chapter 10 Active Tower and Rackmount Specifications

Table 5. Chloride Active UPS North America

UPS Model	Active 700	Active 1000	Active 2000	Active 3000
<b>Electrical Data</b>				
Rating	700 VA	1 kVA	2 kVA	3 kVA
<b>Input</b>				
Voltage	120 VAC single-phase			
Voltage range A	80 - 138 VAC			
Frequency	50/60Hz $\pm$ 0.5%			
Power factor ( $\lambda$ )	>0.95			
<b>Battery</b>				
Integrated battery type	Lead-calcium, maintenance-free			
Battery voltage (V)	24	36	96	96
Runtimes (min.) (half load/full load)	10/5	15/6	18/7	10/5
Runtimes (min.), 1 battery cabinet (half load/full load)	NA	70/30	100/30	60/30
Runtimes (min.), 2 battery cabinets (half load/full load)	NA	130/60	200/80	120/50
<b>Output</b>				
Voltage	100/110/120 VAC, single-phase			
Voltage tolerance	$\pm$ 3%			
Frequency with mains control	see input frequency			
Frequency with internal control	50/60 Hz, $\pm$ 0. 5%			
Distortion factor (linear/non-linear load)	max. 4%/max. 7%			
Permissible crest factor	3			
Overload capability	130% for 1.5 sec., 110% for 10 sec. output short-circuit proof			
<b>Common Data</b>				
Electrical safety	UL1778			
Radio interference level	FCC Part 15 Class A			
Interference immunity	IEC 801-2,level 4 / IEC 801-3,level 3; IEC 801-4,level 4 / IEC 801-5,level 2)			

Table 5. Chloride Active UPS North America

UPS Model	Active 700	Active 1000	Active 2000	Active 3000
Efficiency	> 83%			
Protection class	IP 20			
Cooling	Fan			
Noise level mains operation	< 41 dBa	< 41 dBa	< 50 dBa	< 50 dBa
Noise level battery operation	< 45 dBa	<45 dBa	< 50 dBa	<50 dBa
Operating temperature (ambient)	+ 50°F to +105°F (10°C to + 40°C) recommended +59°F to +89°F (+15°C to + 32°C)			
Storage temperature	+5°F to +104°F (-15°C to +40°C)			
Relative humidity	20% to 90%,non-condensation			
Altitude	max. 10,000 ft. (3000m), above 5,000 ft. (1500m) max ambient temperature = 95°F (35 °C)			
<b>Mechanical Data</b>				
<b>UPS</b>				
Weight - lbs. (kg)	28.6 (13)	35.3 (16)	75 (34)	75 (34)
Dimensions - HxWxD in. (mm)	8.9 x 5.7 x 16 (225 x 145 x 405)		13.8 x 7.9 x 18.5 (350 x 200 x 470)	
<b>Battery extension</b>				
Type	None	BPAActive 1000	BPAActive 3000	BPAActive 3000
Weight lbs (kg)	None	42 (19)	106 (48)	106 (48)
Dimensions - HxWxD in. (mm)	None	8.9 x 5.7 x 16 (225x145x405)	13.8 x 7.9 x 18.5 (350 x 200 x 470)	
<b>Signals</b>				
Visual	LED-indication at the front side			
Audible	Acoustical alarm			
Communications	RS232 interface Alarm contacts +5V...+12 V Signal input +5V...+12 V Ethernet (optional)			

Table 5. Chloride Active UPS North America

UPS Model	Active 700	Active 1000	Active 2000	Active 3000
<b>Connections</b>				
<b>Mains connections</b>				
Type	5-15P	5-15P	L5-20P	L5-30P
Fusing mains / CB	10 A	15 A	20 A	30 A
<b>Load connection</b>				
Quantity	3	3	3/1	3/1
Type	5-15R	5-15R	5-15R/L5-20R	5-15R/L5-30R
Maximum current (at 120 VAC, pf = 0.7)	5.8 A	8.3 A	16.7	25 A
Interfaces COM A	9-pin SUB-D (pin contact)			
Interfaces COM B (optional)	Optional contact or ethernet card			
External battery cabinet	none	keyed plug, 3-pole		

Table 6. Active Rackmount Technical Data for North American Models

Type	Active700-19	Active1000-19	Active2000-19	Active3000-19
<b>Dimensions</b>				
Unit dimensions - WxHxD - in. (mm)	19 x 3.5 x 17.6	19 x 3.5 x 17.6	19 x 3.5 x 18.8	19 x 3.5 x 18.8
Body dimensions - WxHxD - in. (mm)	16.1 x 3.5 x 16.1	16.1 x 3.5 x 16.1	16.1 x 3.5 x 17.3	16.1 x 3.5 x 17.3
Weight - lbs	33 (15)	40 (18)	27 (12)	30 (13.5)
<b>Operating Data</b>				
Ambient temperature	+50°F to 104°F (+10°C to +40°C) 5000 ft to 10000 ft: 50°F to 95°F (1500 m to 3000 m: +10°C to +35°C)			
Storage temperature	+5°F to +104°F (-15°C to +40°C)			
Relative Humidity	20% to 90%, non-condensing			
Type of cooling	Fan			
Safety class	UL1778			
RFI class	FCC part 15 Class A			
Efficiency	> 83%	> 83%	> 83%	> 83%
Noise level	42 dBa	42 dBa	50 dBa	50 dBa
<b>Installation</b>				
Mains connections	5-15P	5-15P	L5-20P	L5-30P
Electrical load (output)	(3) 5-15R	(3) 5-15R	(2) 5-20R	(1) L5-30R
Minimum fuse protecting of mains	10 A	15 A	20 A	30 A
Battery pack - external	—	BPAActive1000-19	BPAActive3000-19	BPAActive3000-19
Battery voltage	—	36 V	96 V	96 V
Net weight (kg)	—	47.5 (21.5)	59.5 (27)	59.5 (27)
Dimensions	—	same as UPS		

# 10.1 Battery Lifetime

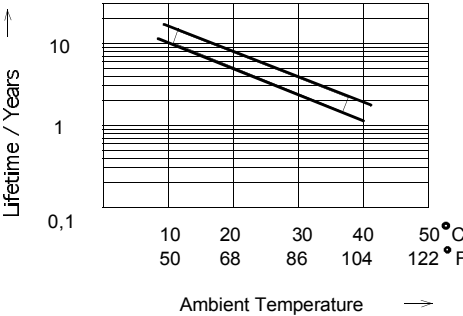


Fig. 19: Typical lifetime of the batteries

Figure 19 shows the typical lifetime of the batteries which are used in the UPS devices, depending on the devices' ambient temperature.

## Chapter 11 Chloride Introduction

Thank you for selecting this uninterruptible power supply (UPS). Chloride's E-Series UPS offer the most reliable protection from the harmful effects of electrical line disturbances for your computing and communications equipment.

### 11.1 Registering your Chloride E-Series UPS

To ensure that your E-Series model and serial number are registered, complete and mail the enclosed postage-paid warranty card.


### 11.2 Technical Support and Service (E-Series)


Chloride offers 24-hour technical support. To contact Chloride Technical Services:

- Phone: (800) 388-4234 or (847)-990-3229
- email: [usa.service@chloridepower.com](mailto:usa.service@chloridepower.com).


Please check with Chloride Technical Services before attempting to repair or return any Chloride product. If a Chloride unit needs repair or replacement, Chloride Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

### 11.3 Safety Notes


 **WARNING:** Read the following information carefully! Disregard of these safety notes may endanger your life and health as well as the functioning of your equipment and the safety of your data.

 **WARNING:** This equipment services power from more than one source. The output receptacles may have voltage even when the unit is unplugged.

UPSs present a different safety issue than most electrical equipment because unplugging the UPS puts it into backup mode. Unplugging the UPS does not remove the electrical charge. To ensure that the UPS is off, push BYPASS (for a minimum of 1 second) before unplugging the UPS from the mains.

 **CAUTION:** Operating this equipment without proper grounding may present a risk of electrical shock.


Do not use AC adaptors with only two conductors to connect the input line cord to the wall socket as this will not connect the earth ground to the equipment.

 **WARNING:** Dangerous voltages are present within this unit! There are no user-serviceable parts inside. Any repairs or modifications by the user may result in out-of-warranty repair charges, unsafe electrical conditions, or violation of electrical code.

This device complies with the relevant safety regulations for uninterruptible power supplies for use in a controlled office environment. If you have any questions, please contact Chloride Technical Service at (800) 388-4234 or (847) 990-3229.

- Transport the unit only in suitable packaging (protect against jolts and shocks).
- If the equipment is moved indoors from a cold environment, condensation may occur. Before you place

the equipment in service it must be absolutely dry. An acclimatization period of at least two hours is required.

- This equipment must be installed in an indoor, temperature controlled environment that is free of conductive contaminants. See chapter 19, “E-Series Specifications” on page 50 for specific environmental limits.
- The special conditions for installing the hard-wired devices E61, E101 and E203 in chapter 13, “E-Series Installation and Commissioning” on page 33 must be observed.
- The switch  (see chapter 12, “Display and Operation Elements (E-Series)” on page 29) does not isolate the device (UPS) from the mains. To isolate completely from the mains, the main switch must be switched off and the power plug disconnected.

***CAUTION:** Removing mains power may not remove power from the device (UPS) output. See instructions above to properly remove power from output.*

- In case of interruption of the mains voltage, the integrated battery maintains the power supply to the connected equipment.
- Lay all cables so that nobody can stand on them or trip over them. When connecting the device to the power supply, follow the instructions in the chapter on “E-Series Installation and Commissioning” on page 33.
- No data transmission lines should be connected or disconnected during a thunderstorm.
- Make sure that no objects (e.g. pins, necklaces, paper clips, etc.) get inside the device.
- In emergencies (e.g. damaged case, controls or power cables, penetration of liquids or foreign matter) put the device into BYPASS, disconnect the power plug and contact Chloride Technical Services at 1-800-388-4234 or 1-847-990-3229. The special conditions for installing the hardwired devices, E61, E101 and E203 are in chapter 13, “E-Series Installation and Commissioning” on page 33.
- Do not connect equipment that will overload the UPS (e.g. laser printers or vacuum cleaners) or demand DC-current (e.g. half-wave rectifiers or hair dryers).
- When cleaning the unit, follow the instructions in chapter 16, “Maintenance (E-Series)” on page 47.
- The sum of the leakage currents (protective conductor current) of the UPS and the connected devices must not exceed 3.5 mA for the types Active 700, 1000, 2000 and 3000.

Chloride Active and E-Series UPSs are UL listed under UL1778 for North American units.

## **11.4 Warning for E-Series E61, E101 and E203**

This product may only be sold to users with qualified personnel. In order to avoid RF, restrictions for installation or additional precautions may apply.



## Chapter 12 Display and Operation Elements (E-Series)

The Uninterruptible Power System (UPS) is connected between AC power and the load. It protects the load against mains disturbances, especially power failures.

Its operation is based on the on-line principle. The connected load is supplied power through the UPS's inverter. Power disturbances from the mains are suppressed which increases the loads' operational security (PC, network server, multi-user systems etc.)

In the event of a mains failure, maintenance-free batteries provide an uninterrupted supply of energy. In practice, mains failures are of relatively short duration, dependent on the mains quality. Therefore, the UPS' energy is in most cases sufficient to ensure continuous operation of the connected systems, until the mains is reestablished. In the event of a longer lasting mains failure it allows for controlled shutdown of connected systems.

The UPS indicates by acoustical (buzzer) and optical (LED) alarms that a mains failure has occurred and is still persistent. Battery runtimes vary depending upon load, number of batteries and environmental conditions.

The following chart shows the approximate values of the emergency runtime (assuming fully charged battery at the onset of the mains failure.)

	Load in %	E61	E101	E203
OVERLOAD	>105			w/BPE101
	95-105	9 min	9 min	15 min
LOAD	75-95	10 min	10 min	20 min
	55-75	13 min	13 min	25 min
	35-55	21 min	21 min	45 min
	1-35	40 min	40 min	90 min

**NOTE:** \*E-Series Model E203 does not contain internal batteries.

- The actual battery capacity can be read from the LED-"battery" chain (see table below).

Battery Capacity	
Battery	1 - 35%
	35 - 55%
	55 - 75%
	75 - 95%
	95 - 100%

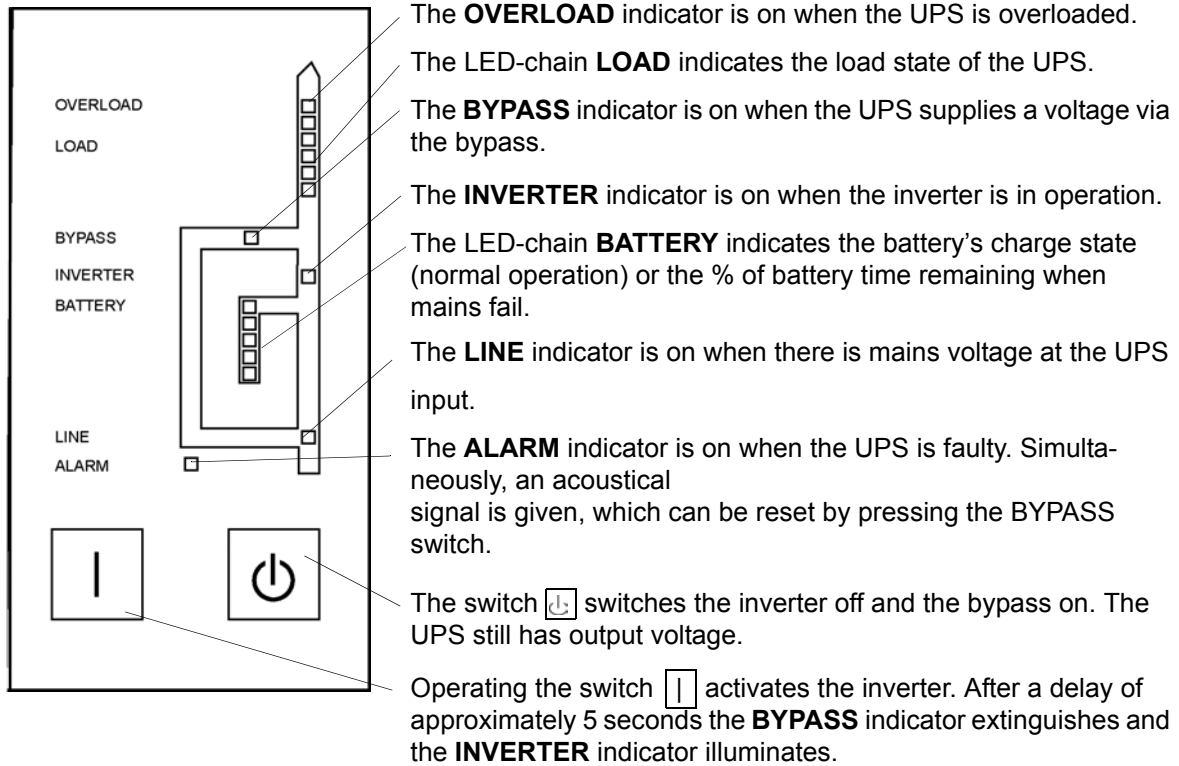
The most reliable method for determining actual battery runtime is the application of Chloride MopUPS<sup>®</sup> software. With this software, the prospective remaining battery capacity is indicated before and during an AC power failure. Furthermore, shutdown procedures can be automated. Depending on the application program, operating system and computer hardware, it can be ensured that in the event of a power failure the application programs are automatically closed, the subscribers logged in at the server are logged out, the data is stored and the operating systems are shut down. For further information please refer to our publication about the Chloride ManageUPS<sup>™</sup>NET SNMP Adapter.


After return of the mains voltage, the UPS automatically initiates a restart. The connected systems are restarted according to their specifications.

In the event of overload or internal failure, the load is supplied from the mains via an automatic bypass. As soon as the normal status is reestablished, automatic switchover to inverter operation is performed.

This operation manual contains all relevant information to install and operate the UPS.

## 12.1 Front



**NOTE:** To switch from *BYPASS* to *INVERTER*, press the  switch for at least 1 second. (A tone sounds confirming the switch).

## 12.2 Rear

### 12.2.1 E-Series E61 and E101

Selector switch - for output voltage  
The selection of the output voltage  
must be made with the UPS switched  
off.\*

(E61 with optional PDU shown)

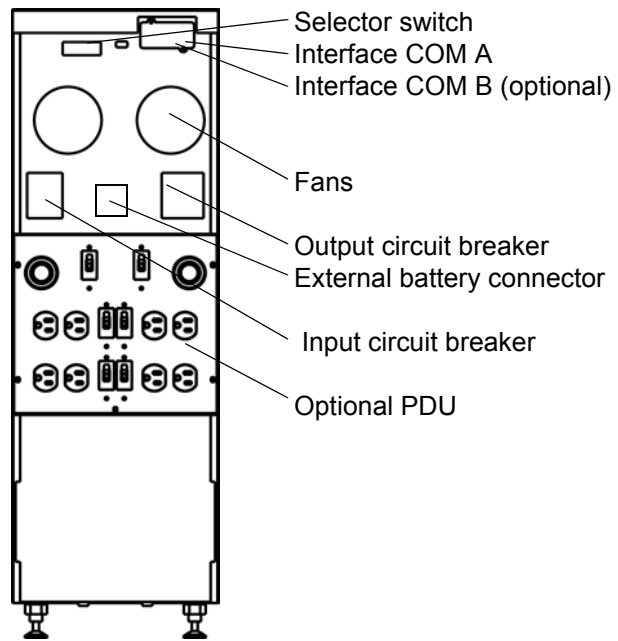


Fig. 20: E41 or E61

Selector switch - for output voltage  
The selection of the output voltage must be made with the UPS switched off.\*

(E101 with optional PDU shown)

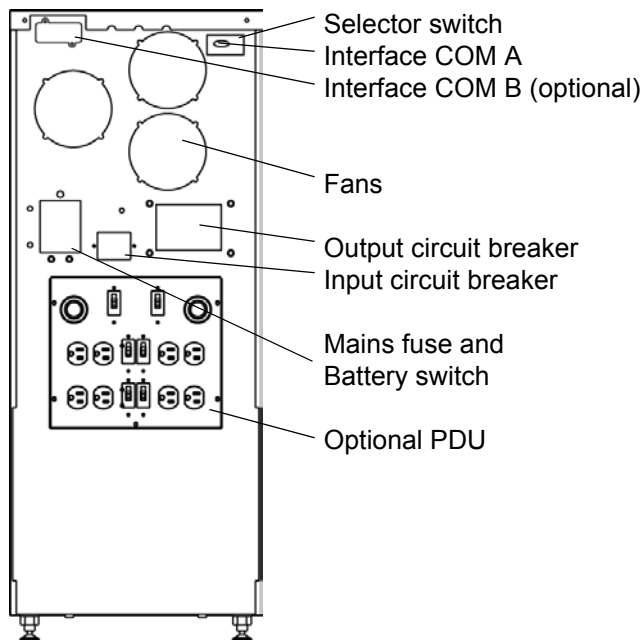


Fig. 21: E81 or E101

\* Call Chloride Technical Services for information on setting output voltages ((800) 388-4234 or (847) 990-3228)

### 12.2.2 E-Series E203

Selector switch - for output voltage  
The selection of the output voltage must be made with the UPS switched off.\*

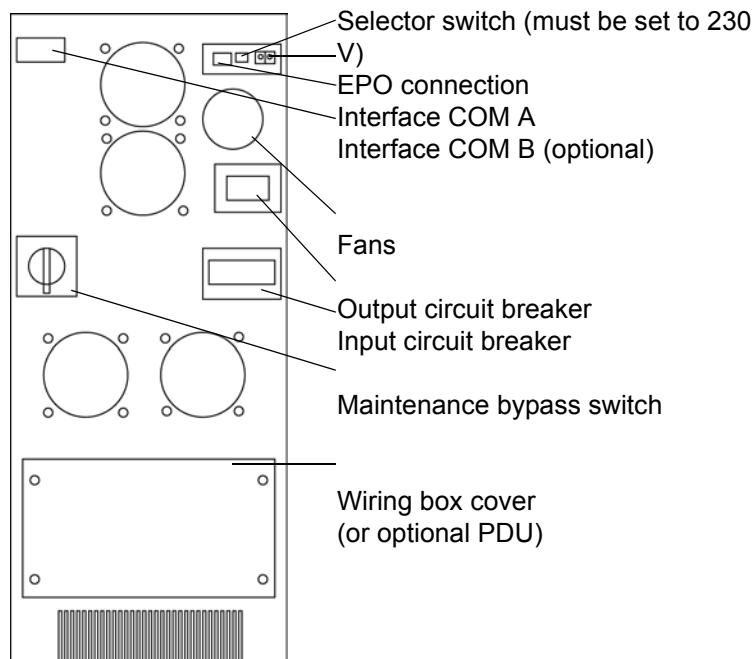


Fig. 22: E203

\* Call Chloride Technical Services for information on setting output voltages at (800) 388-4234 or (847) 990-3229

## Chapter 13 E-Series Installation and Commissioning


Upon receipt of your UPS, carefully examine the packing containers for any sign of physical damage. Notify the carrier immediately if damage is present. Carefully unpack the UPS. Retain the packaging for reuse or dispose. Check the packing for damages.

**NOTE:** *If damages are detected, please inform the shipping agent immediately.*

UPS includes:

- UPS device
- A recharging cable is connected to external battery cabinets BPE61.

### 13.1 Installation of the E-Series (Hardwired)

 **WARNING:** *Only qualified electricians should install an Chloride E-Series E61 (E41), E101, (E81) or E203 (E153) hardwired UPS. When installing the unit, follow applicable local and national regulations (such as the U.S. National Electric Code), good wiring practices and this manual.*


1. Unpack and move E-Series UPS and battery cabinet(s), if supplied, into desired installation location.
2. Adjust leveling jacks under the UPS and battery cabinet(s) to remove wheels of the units from the floor and avoid movement of connections.
3. Turn off input and output breakers on the back of the UPS and any battery cabinets to be used.
4. Turn off and isolate the power source to be used for the UPS input using proper lock-out/tag-out procedures.
5. Confirm that the power source to be used for the UPS is 208 V (208/120 3  $\phi$  for E203).
6. Remove the connection plate on the back of the UPS to expose connection terminals.
7. Wire input of the UPS by first connecting ground (earth) wire to GND (ground) terminal. Next, connect the input power leads to L1/N and L2 (for E61 and E101) or L1, L2, and L3 (for E203). See Table 10, “Minimum Requirements for E-Series UPS Installation,” on page 40 for minimum wire gauge, wire temperature and screw torque requirements.

**NOTE:** *Always use grounding conductor that is equal to or larger in size than the current carrying conductors.*

8. If the UPS does not have an attached Power Distribution Unit (PDU), wire the output of the UPS to appropriate load as follows:

Wire 208 V load between terminals marked 120A (x1) and 88B (x3).

Wire 120 V loads between terminals marked 0 (x2) and 120A (x1) or 0 (x2) and 120B (x4).

 **CAUTION:** *The load connected to 120A and 120B must each be no more than 1/2 the nameplate rated 120 V current. User must properly fuse these outputs to this rating.*

9. Connect the UPS to the battery cabinet(s) (if required)

See Table 10, “Minimum Requirements for E-Series UPS Installation,” on page 40 for minimum wire gauge, wire temperature and screw torque requirements.

For model E61 (if using an external battery cabinet), first remove the connection plate from the rear of the battery cabinet, then connect the battery cable (supplied with the battery cabinet) from the battery connector on the UPS to the terminals on the battery cabinet. Confirm that (+), (-) and GND terminals are connected to proper wires. Connect any additional battery cabinets in a “daisy-chain”

manner until all GND terminals, (-) terminals and (+) terminals are connected together. See Table 10, “Minimum Requirements for E-Series UPS Installation,” on page 40 for minimum wire gage, wire temperature and screw torque requirements.

For models E101 and E203, first remove the connection plate from the rear of the battery cabinet. Next, connect the wires from GND terminal on the UPS to GND wire on the battery cabinet, and then from (-) terminal on the UPS to the (-) terminal on the battery cabinet. Finally, connect (+) terminal on the UPS to the (+) terminal on the battery cabinet. Connect any additional battery cabinets in a “daisy-chain” manner until all GND terminals, (-) terminals and (+) terminals are connected together. See Table 10, “Minimum Requirements for E-Series UPS Installation,” on page 40 for minimum wire gage, wire temperature and screw torque requirements.

10. Carefully replace the connection plate(s) on the battery cabinet and the UPS, making sure that no wires are pinched or damaged.
11. Confirm that all input and output breakers on the UPS and battery cabinet(s) are in the OFF position.
12. Restore power source to the UPS.



**WARNING:** Make sure that all circuit breakers on the battery cabinet and UPS are in the “OFF” position before removing any covers.

Table 7. Minimum Requirements for E-Series UPS Installation

	Term ID	Description	E61 (E41)			E101 (E81)			E203 (E153)		
			Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*	Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*	Min. Wire Gauge (awg)	Term Torque (in-lbs)	Min. Wire Temp. (°C)*
	GND	Chassis Ground	**	40	75	**	45	75	**	45	90
	L1/N	Line 1	8	40	75	6	45	75	4	45	90
	L2	Line 2	8	40	75	6	45	75	4	45	90
	L3	Line 3	N/A	N/A	N/A	N/A	N/A	N/A	4	45	90
	120A	120 V from Neutral	10	35	75	6	45	75	4	45	90
	0	Neutral	10	35	75	6	45	75	4	45	90
	88B	208 V from 120A	10	35	75	6	45	75	4	45	90
	120B	120 V from Neutral	10	35	75	6	45	75	4	45	90
	GND	Chassis Ground	opt	35	75	opt	45	75	opt	45	90
	+	+240 VDC to -	N/A	N/A	N/A	4	45	75	4	45	75
	-	Battery Common	N/A	N/A	N/A	4	45	75	4	45	75
	GND	Chassis Ground	N/A	N/A	N/A	4	45	75	4	45	75

\* Use insulated copper wire rated 75 C minimum.

\*\* Must be no smaller than wire connected to L1/N and L2 (for E61 and E101) or L1, L2, L3 (for E203).

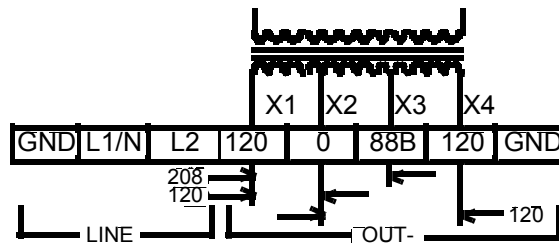


Fig. 23: Wiring Diagram for the E61

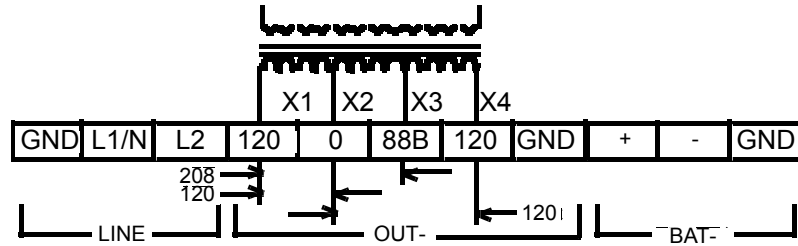


Fig. 24: Wiring Diagram for the E101

**NOTE:** 120 A or 120B must be limited to 1/2 nameplate rated current. It is user's responsibility to fuse or breaker these outputs.

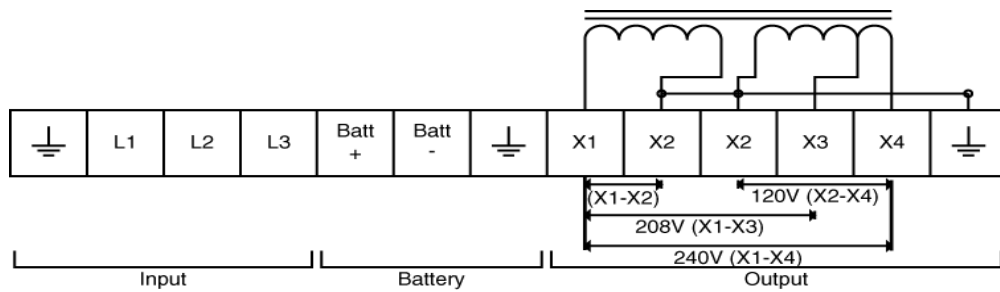


Fig. 25: Wiring Diagram for the E153 and E203

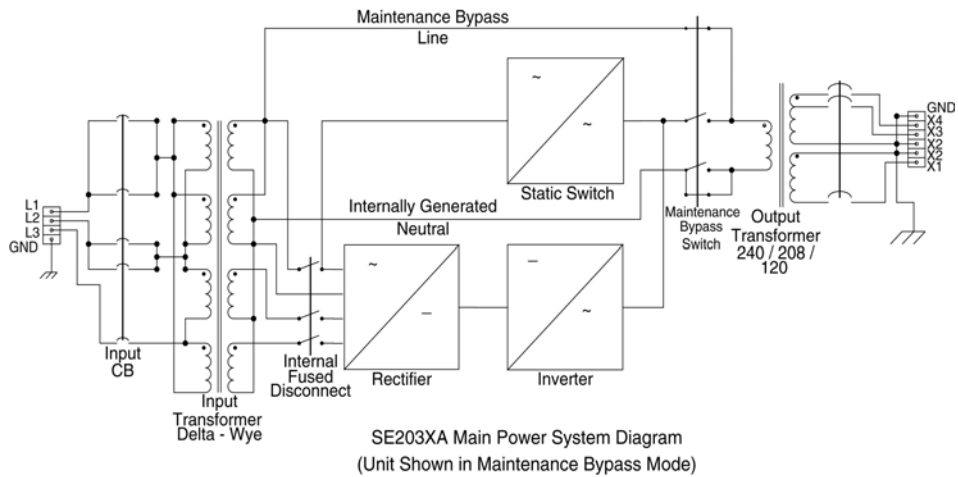


Fig. 26: E203 Power System

**NOTE:** 120 A (X1-X2) or 120B (x2-x4) must be limited to 1/2 nameplate rated current. It is user's responsibility to fuse or breaker these outputs.




## 13.2 Commissioning of the E-Series

When connected to the mains, the batteries automatically begin charging. The UPS may be used immediately, however, full run time will not be available until the batteries are fully charged.

1. Before using the device, charge the batteries for 8 hours.
2. After charging, connect the loads to the UPS.

**NOTE:** Do not connect any devices that overload the UPS or draw DC current from the UPS (e.g. hair dryers, vacuum cleaners).

3. When the signal interface is used, then the connection cable (accessories) is linked between UPS and computer system. Please see instructions in the documentation for the accessories.
4. Switch on the loads.
5. Switch on the UPS by operating the switch  on the front panel.

The “LINE” and “BYPASS” indicators and the “LOAD” (output load) indicator are illuminated. After a few seconds the “INVERTER” indicator illuminates and the “BYPASS” indicator turns off. The UPS is now in ON-LINE operation.

**NOTE:** If the “LOAD” indicator is beyond 100%, then too many devices are connected to the UPS. If only one device is connected to the UPS, then its energy demand exceeds the nominal rating of the UPS, which means that a UPS with a higher power rating has to be used.

An overload alarm signal (1 signal per second) is heard.


**NOTE:** The UPS devices may be commissioned even without being supplied by the grid. The batteries, however, should be charged sufficiently (see above).

## 13.3 Starting Up the E-Series

**NOTE:** IF YOUR UPS WAS PURCHASED WITH A FACTORY START-UP SERVICE CONTACT CHLORIDE TECHNICAL SERVICES AT (800) 388-4234 OR (847) 990-3229 BEFORE PROCEEDING WITH THE START-UP OF THE UPS FOR THE FIRST TIME.

**NOTE:** Confirm mains voltage is 208 VAC 1 $\phi$  for E61 and E101 and 208/120 VAC 3 $\phi$  for E203

1. Switch on the input circuit breaker on the back of the UPS.

 **WARNING:** As soon as the UPS is connected to the AC mains, the output receptacles are energized, even if the UPS is not yet switched on with the front-panel switch.

The “LINE” and “BYPASS” LED indicators are illuminated.

2. When connected to the mains, the batteries automatically begin charging. The UPS may be used immediately, however, full run time will not be available until the batteries are fully charged
3. Before using the device, charge the batteries for 8 hours.
4. After battery charging is completed, switch on the output circuit breaker at the rear side of the UPS. The loads are now supplied by the UPS.

**NOTE:** Do not connect any devices that overload the UPS or draw DC current from the UPS (e.g. hair

*dryers, vacuum cleaners).*

5. If a signal interface cable is used, connect the cable (accessory) between the UPS and the computer system. Please observe further instructions in the documentation for the accessory.
6. Switch on the loads.
7. Switch on the UPS by operating the switch  at the front plate.

**NOTE:** *If unit will not switch on, confirm that the batteries are properly connected to the unit and any battery breakers are “ON.”*

The “LINE” and “BYPASS” indicators and the “LOAD” (output load) indicator are illuminated. After a few seconds the “INVERTER” indicator illuminates and the “BYPASS” indicator turns off. The UPS is now in ON-LINE operation.

**NOTE:** *If the “LOAD” (output load) indicator is beyond 100%, then too many devices are connected to the UPS. If only one device is connected to the UPS, then its energy demand exceeds the nominal rating of the UPS, which means that a UPS with a higher power rating has to be used.*

An overload alarm signal (1 signal per second) is heard.

## 13.4 Commissioning of an External Battery Cabinet

The following table shows the designations of the battery cabinets which are available for the UPS devices.

Table 8. External Battery Packs

Model	Cabinet	Batteries
E61 (E41)	BPE61	2x (20 x 7.2 Ah)
E101 (E81)/ E203 (E153)	BPE101	1x (20 x 38 Ah)

Disconnect the UPS from the mains and the loads from the UPS.

**⚠ CAUTION:** Make sure that the circuit breaker on the external battery cabinet is in the OFF position.

**⚠ CAUTION:** Battery cabinets are not interchangeable. Use ONLY the battery cabinet indicated above.

Connect the battery cabinet types BP1000, BP3000 and BPE61 to the UPS using the supplied cable. The connection scheme is shown in the figures below. With type BPE101, make the hard-wired connection between UPS and the battery cabinet (see figures 28 and 29 on page 40).

Switch the circuit breaker on the battery cabinet to the ON position.

The UPS is now ready for operation.

**NOTE:** Battery charging times may be longer when using an external battery cabinet.

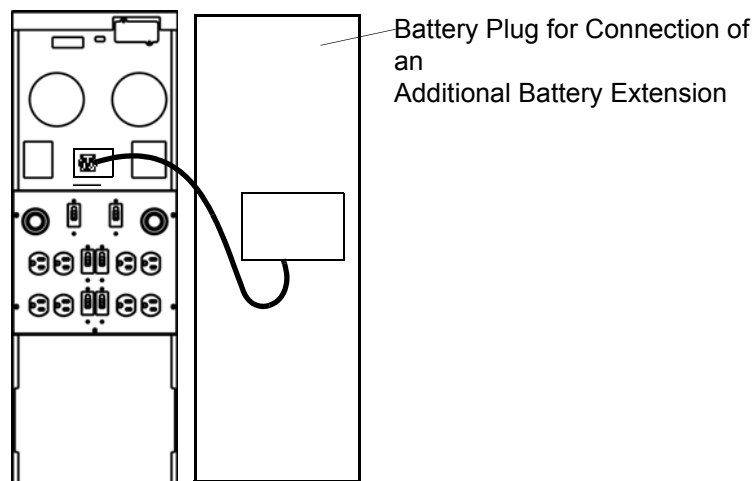


Fig. 27: Connection of an External Battery Cabinet to Type E61

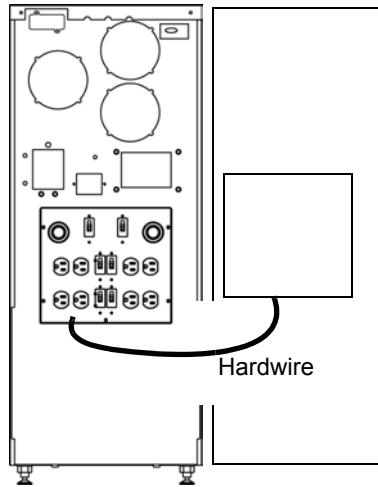


Fig. 28: Connection of an External Battery Cabinet to Type E101

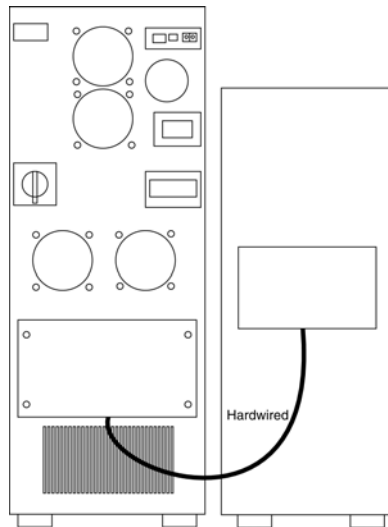


Fig. 29: Connection of an External Battery cabinet to Type E203

**⚠ WARNING:** *The connection of the external battery cabinet may only be done by qualified personnel in accordance with the applicable safety regulations.*

**⚠ CAUTION:** *For the electrical installation, the maximum load capacity of the connection cable has to be taken into account.*

Table 9. Technical data of the connection cable

	<b>E101</b>	<b>E203</b>
Minimum permissible cable cross section	6 mm <sup>2</sup> , 8 AWG	4 AWG
Maximum permissible cable cross section	20 mm <sup>2</sup> , 4 AWG	4 AWG
Nominal operating voltage	240 VDC	240 VDC

## Chapter 14 Operational Characteristics (E-Series)

### 14.1 Ready for Operation Check

To check the emergency supply feature of the UPS, it must be disconnected from the mains.

When correctly functioning with charged batteries, an acoustical signal in intervals of 4 seconds will be heard. The LED “LINE” (line voltage) indicator disappears. When the interval between the acoustical signals is reduced to 1 second, the UPS will supply energy for a maximum of 3 more minutes before it is automatically switched off.

The load will be supplied from the batteries during the specified emergency supply period. If this is not so, then please check in chapter 17 “Troubleshooting (E-Series)” on page 48.

Reconnect the UPS with the mains.

The UPS is now again ready for normal operation. Please note, that the batteries have to be recharged before the complete emergency supply period is again available.

### 14.2 Self Test

The self test is a LED test.

With the UPS connected to the AC power, switch  has to be operated for at least 1 second.

- Acknowledgment of the input is given by a single acoustical signal.
- The elements of the LED “BATTERY” chain are illuminated according to the battery’s load status. The “LINE” and “BYPASS” indicators are illuminated.
- Initially all elements of the LED “LOAD” chain are illuminated. Beginning with the top indicator, all elements of this chain will extinguish one after the other. Thereafter the elements are on according to the UPS load status.
- The “BYPASS” indicator turns off after approximately 5 seconds and the “Inverter” indicator illuminates. The load is supplied through the inverter, the energy is taken from the mains.

## 14.3 Modes of Operation

There are three modes of operation, when the UPS is switched on.

### 14.3.1 Normal Operation, Inverter On (Mains Available)

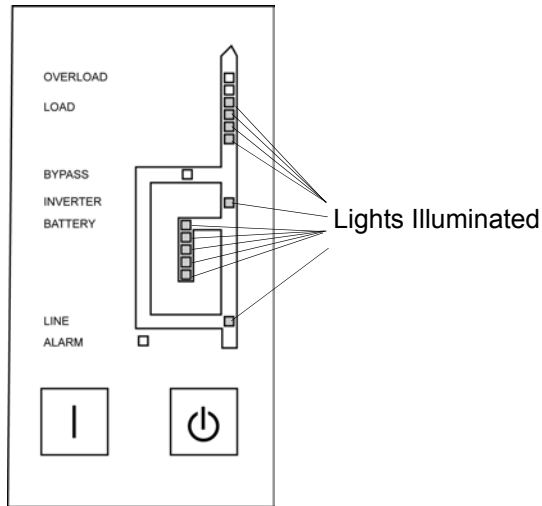


Fig. 30: Front Display Panel During Normal Operations (Mains Available)

The loads are supplied through the inverter, the energy is taken from the mains.

### 14.3.2 Battery Operation, Inverter On (Mains Failure)

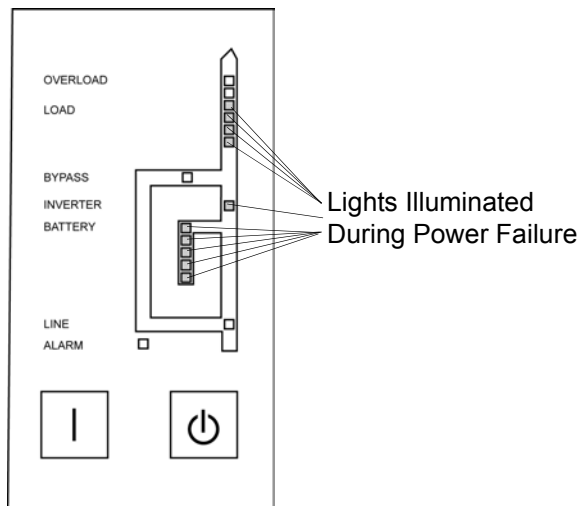


Fig. 31: Front Display Panel During Battery Operation (Mains Failure)

In the event of a mains failure, the inverter continues to supply the loads uninterruptedly, the energy is taken from the battery.

In this operation mode, an acoustical signal is given in intervals of approximately 4 seconds. When reaching the battery's energy minimum, this signal is given every second.

### 14.3.3 Bypass Operation, Inverter OFF (Overload > 140%)

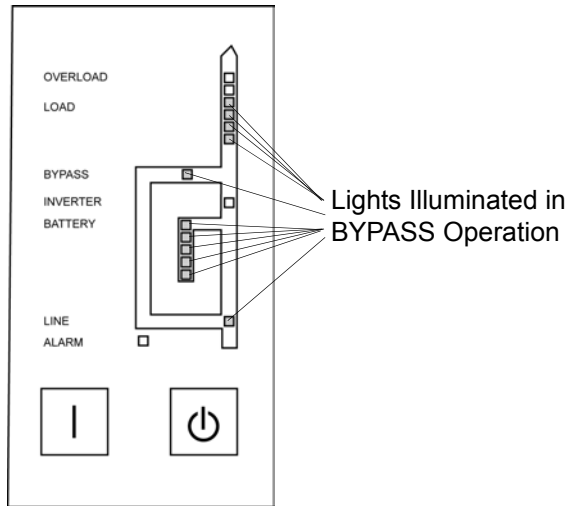


Fig. 32: Front Display Panel During Bypass Operation (Overload > 140%)

In the event of large overload (> 140%) switch-over to bypass is initiated and the inverter is blocked. The energy is taken from the mains.

This is not a normal operating status. In the event of mains failure the loads will no longer be supplied (no UPS operation).

## Chapter 15 Description of the Interface (E-Series)

The E-Series UPS has a standard interface COM A and an optional interface COM B. Protocol data transfer signal exchange is through COM A RS232 interface or the optional interface (COM B).

These interfaces can be used for:

- Direct communication between UPS and a computer.
- Integration of the UPS as client into a network with centralized monitoring.
- Transfer of operational states to external alarm systems.

The necessary communication software packages and interface cables are available as accessories.

### 15.1 Standard Interface COM A

The 9-pin SUB-D connector (pin contacts) contains the RS 232 signals, 5 output signals and 1 input signal. The RS232 signal RXD can also be used as input signal, when the sequential interface is not used.

The 5 alarm outputs are open-collector outputs.

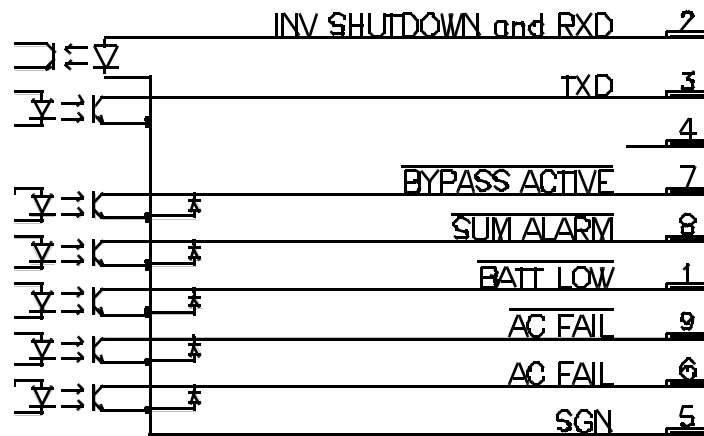


Fig. 33: COM A signal Definition and Connection

The interface COM A is galvanically separated from all other circuits.



Table 10. Interface COM A

Pin Number	Condition
SGN at pin 5	This connection point serves as a reference for all signals.
RXD at pin 2 and TXD at pin 3	In conforms standard RS232 configuration.
INV SHUTDOWN at pin 2	This input (pin 2: High signal +5V...+12V, > 1 second, pin 5: 0V) enables the control processor to switch off the UPS in the event of a mains failure. After the mains has been reestablished, the UPS starts again independent of this signal status.
BATTERY LOW at pin 1	This output goes low, when the battery can supply current for approximately 3 more minutes at nominal load.
AC FAIL at pin 9 and AC FAIL at pin 6	Pin 9 goes low and pin 6 goes high for mains voltage failure at the UPS input for a minimum of 10 seconds or when the mains voltage moves beyond the tolerance band. The signal is reset 850 ms after the mains have been reestablished.
BYPASS ACTIVE at pin 7	This signal goes low after switching over to bypass, blocking the inverter and the energy being supplied by the mains
SUM ALARM at pin 8	This output is low, when one of the alarms "BATTERY LOW", "AC FAIL" or "BYPASS ACTIVE" is given.

## 15.2 Optional Interface COM B

The optional interface COM can be equipped with various interface cards. The designation beside the plug then depends on the type of interface card.

In the following the function of the interface signals for version COM B is described. The optional interface COM B provides potential-free signalling contacts and a shutdown input and an insulated auxiliary supply.

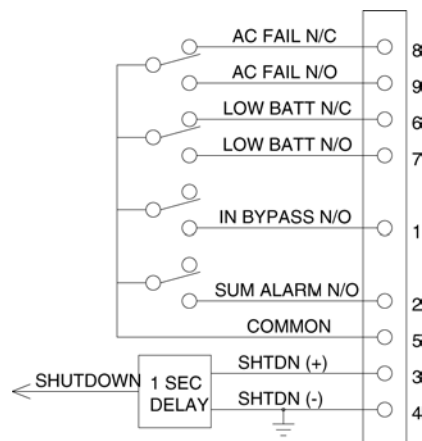


Fig. 34: Simplified Schematic of Interface Connections

## Troubleshooting Optional Interface COM

### **INV SHUTDOWN**

This input (pin 3) is enabled with a high signal (+5 V to +12 V with respect to pin 4 (0 V)) and when enabled, switches off the UPS after a mains failure has occurred. After the mains has been reestablished, the UPS starts again independent of this signal status. This input must be high for one (1) second before shut off will occur.

### **AC FAIL**

This output provides an N/O (Normally Open) contact between pins 9 and 5, and an N/C (Normally Closed) contact between pins 8 and 5. The 9-5 contact closes when the mains voltage fails at the UPS input or when the mains voltage falls below the lower limit for a minimum of 10 seconds. This contact opens approximately 850 ms after the mains have been reestablished. The 8-5 contact provides a mirror function, opening when the mains voltage fails and closing when mains power returns.

### **LOW BATT**

This output provides a N/O contact between pins 6 and 5 and an N/C contact between pins 7 and 5. The 6-5 contact closes when the battery has been depleted to the point that it can only supply current for approximately three (3) more minutes at nominal load. The 7-5 contact provides a mirror function opening when the battery is low.

### **BYPASS ACTIVE**

This output provides an N/O contact between pins 1 and 5. The 1-5 contact closes after switching to the bypass mode. In the bypass mode, energy to the output of the UPS is being supplied by the mains power and not through the inverter.

### **SUM ALARM**

This output provides an N/O contact between pins 2 and 5. The 2-5 contact closes when one of the alarms “AC FAIL,” “LOW BATT” or “BYPASS ACTIVE” is active or when the indication “ALARM” at the front-panel is on.

## **15.3 Emergency Power Off (EPO)**

### **(E-Series Models E153X and E203X only)**

The external connection to the EPO circuit is located next to the 9-pin SUB-D (interface com A) connector in the upper right of the back of the unit. If the circuit between the two EPO connector pins is “opened,” the output of the UPS is immediately switched off. To restart the UPS, the procedures outlined in section 13.3 on page 37 must be followed. The EPO circuit may be extended by connecting normally closed switches in series between the EPO connector pins. Activating (opening) any of the series switches will cause the UPS to shut off its output.

## Chapter 16 Maintenance (E-Series)

The UPS does not require maintenance by the user. When the battery expires, the UPS or the battery must be replaced by qualified electrical personnel.

The typical battery's lifetime is 4 years at an ambient temperature of 25 °C. This may vary greatly depending upon load conditions, number of outages, and environmental factors.

**NOTE:** Check periodically (6 to 12 months), to see whether the emergency supply time of the UPS is still sufficient for its application (See "Ready for Operation Check" on page 41.).


### 16.1 Storage

For extended storage in moderate climates, the batteries should be charged for 8 hours every three months. Repeat it every two months in high temperature locations.

1. Install the hard-wire connections according to chapter 13 "E-Series Installation and Commissioning" on page 33 at an appropriate source. Switch on the input circuit breaker at the rear of the device for hard-wired connection.
2. Switch off the input circuit breaker of the UPS. Then remove the connections of the UPS in an inverted sequence to what is described in chapter 13 "E-Series Installation and Commissioning" on page 33.
3. Note the date of charging on the packing.

**NOTE:** Make sure all circuit breakers are turned off.

### 16.2 Cleaning

**NOTE:** E-Series E61, E101 and E203: Press the  switch on the front panel, switch off the input circuit breaker, isolate the source and secure it against reclosing.

Do not use scouring powder or plastic-dissolving solutions to clean the UPS.

Do not allow liquid to get inside the UPS.

Make sure that the air vents on the UPS are not obstructed.

Clean the outside of the UPS housing by wiping with a dry or a slightly damp cloth.

## Chapter 17 Troubleshooting (E-Series)

If a problem occurs in spite of the high reliability of the device, please review the following checks before calling Chloride Technical Services.

- Is the UPS plugged into a correctly working grounded receptacle (or for hardwired to confirmed 208 VAC input)?
- Has the fuse blown or have circuit breakers tripped?

Please note the following information when you call for service:

- Information about the device (model number, serial number from serial plate)

Full description of problem (connected loads, does the problem occur regularly or sporadically, display indicators/alarm etc.)

*Table 11. Troubleshooting*

<b>Problem</b>	<b>Possible Cause</b>	<b>Action to Take</b>
No indication. No alarm.	Main switch is OFF.	Switch on main switch.
	No mains voltage available.	Have mains checked by qualified electrical personnel.
	Input fuse has blown or input circuit breaker has tripped.	Replace fuse by identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
	External batteries are not connected when powered.	Unit will not run without batteries. Confirm proper battery connection.
LINE Indicator is not on, acoustical alarm is given in intervals.	Mains failure.	Normal UPS operation (see also "Operational Characteristics (E-Series)" on page 41).
LINE Indicator is not on, although mains voltage is available, acoustical alarm is given in intervals.	Input fuse has blown or input circuit breaker has tripped.	Replace fuse with identical type or switch on circuit breaker. If the problem persists, then call Technical Services.
ALARM Indicator is on, continuous acoustical alarm.	UPS failure.	Press BYPASS switch, then ON switch. If normal operation does not occur, call Technical Services.
	Over temperature.	Reduce ambient temperature.
Emergency supply time is shorter than specified.	Batteries are not completely charged.	Charge batteries ("E-Series Installation and Commissioning" on page 33) and test emergency supply time. If problem persists, then call Technical Services.
	Batteries are defective or reached the end of its useful life.	
	Charging device is faulty.	
OVERLOAD LED indicator is on.	Overload at the UPS output.	Reduce load to the permissible value.

## **Chapter 18 Technical Support for your E-Series UPS**

### **18.1 Chloride Technical Support**

Chloride offers 24-hour technical support. To contact Chloride Technical Services:

- Phone: (800) 388-4234 or (847) 990-3229
- email: [usa.service@chloridepower.com](mailto:usa.service@chloridepower.com).

Please check with Chloride Technical Services before attempting to repair or return any Chloride product. If a Chloride unit needs repair or replacement, Chloride Technical Services issues a Return Material Authorization (RMA) number along with instructions on how to return the unit.

## Chapter 19 E-Series Specifications

Table 12. Chloride E-Series UPS North America

UPS Model	E61XA (E41XA*)	E101XA (E81*)	E203XA (E153XA*)
* Models may be upgraded to base kVA of UPS shown.			
<b>Electrical Data</b>			
<b>Rating</b>	6 kVA	10 kVA	20 kVA
Input			
Voltage	208 VAC single-phase		208/120 three-phase
Voltage range	170 V to 276 V	176 to 276 V	177 to 240 V
Frequency	50/60Hz $\pm$ 5%		
Power factor (lambda)	>0.97		>0.95
<b>Battery</b>			
Integrated battery type	Lead-calcium, maintenance-free		None
Battery voltage (V)	240		
Runtimes (min.) (half load/full load)	25/8	30/12	N/A
Runtimes (min.), 1 battery cabinet (half load/full load)	94/38	100/40	40/15
<b>Output Voltage</b>			
Voltage - North American	120, 208, 240 VAC, single-phase		
Voltage tolerance	$\pm$ 3%		
Frequency with mains control	see input frequency		
Frequency with internal control	50/60 Hz, $\pm$ 0.5%		
Distortion factor (linear/non-linear load)	max. 4%/max. 7%		max. 5%/ max. 8%
Permissible crest factor	3		
Overload capability	130% for 2 sec., 110% for 10 sec. output short-circuit proof		
<b>Common Data</b>			
Electrical safety	UL1778		
Radio interference level	FCC Part 15 Class A		

Table 12. Chloride E-Series UPS North America

UPS Model	E61XA (E41XA*)	E101XA (E81*)	E203XA (E153XA*)
Interference immunity	IEC 801-2,level 4 / IEC 801-3,level 3 IEC 801-4,level 4 / IEC 801-5,level 2		
Efficiency	> 86%	>90%	>85%
Cooling	Fan		
<b>Common Data (continued)</b>			
Noise level mains operation	< 50 dBa	< 55 dBa	<65 dBa
Noise level battery operation	< 55 dBa	<65 dBa	<65 dBa
Operating temperature	+ 50°F to +105°F (+10°C to + 40°C) recommended +59°F to +89°F (+15°C to + 32°C)		
Storage temperature	+5°F to +104°F (-15°C to +40°C)		
Relative humidity	20% to 90%, non-condensing		
Altitude	max. 10,000 ft. (3,000m), above 5,000 ft. (1,500m) max ambient temperature = 95°F (35 °C)		
<b>Mechanical Data</b>			
<b>UPS</b>			
Weight - lbs.	347	580	787
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 13.4 x 25 (965 x 340 x 670)	46.5 x 16.5 x 31.5 (1180 x 420 x 800)
<b>Battery extension</b>			
Type	BPE61	BPE101	
Weight lbs	337	894	
Dimensions - HxWxD in. (mm)	27.8 x 10.6 x 22.5 (705 x 270 x 570)	38 x 15 x 26.4 (965 x 380 x 670)	
<b>Signals</b>			
Visual	LED-indication at the front side		
Audible	Acoustical alarm		
Communications	RS232 interface Alarm contacts +5V...+12V Signal input +5V...+12V ethernet		

Table 12. Chloride E-Series UPS North America

UPS Model	E61XA (E41XA*)	E101XA (E81*)	E203XA (E153XA*)
<b>Connections</b>			
Mains connections	hardwired min 10 AWG/6 mm <sup>2</sup> max 6 AWG/16 mm <sup>2</sup>	hardwired min 6 AWG/10 mm <sup>2</sup> max 4 AWG/20 mm <sup>2</sup>	hardwired 4 AWG/20 mm <sup>2</sup>
Fusing of the mains supply	35 A	63 A	60 A x 5 poles
Load connection	hardwired min 10 AWG/6 mm <sup>2</sup> max 6 AWG/16 mm <sup>2</sup>	hardwired min 6 AWG/10 mm <sup>2</sup> max 4 AWG/20 mm <sup>2</sup>	hardwired 4 AWG/20 mm <sup>2</sup>
<b>Connections (continued)</b>			
Interfaces COM A	9-pin SUB-D, pin contacts		
Interfaces COM B (optional)	9-pin SUB-D, outlet		
External battery cabinet	keyed plug, 3- pole	hardwired Min 8 AWG/6 mm <sup>2</sup> Max 4 AWG/20 mm <sup>2</sup>	hardwired 4 AWG/20 mm <sup>2</sup>
EPO	N/A	N/A	hardwired removable terminal block



## 19.1 Battery Lifetime

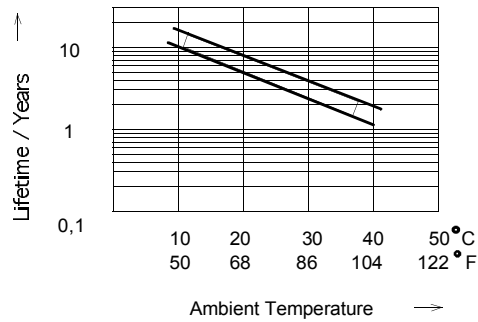


Fig. 35: Typical lifetime of the batteries

Figure 19 shows the typical lifetime of the batteries which are used in the UPS devices, depending on the devices' ambient temperature.

## 19.2 Optional Power Distribution Units (PDU) available 4 -10 kVA.

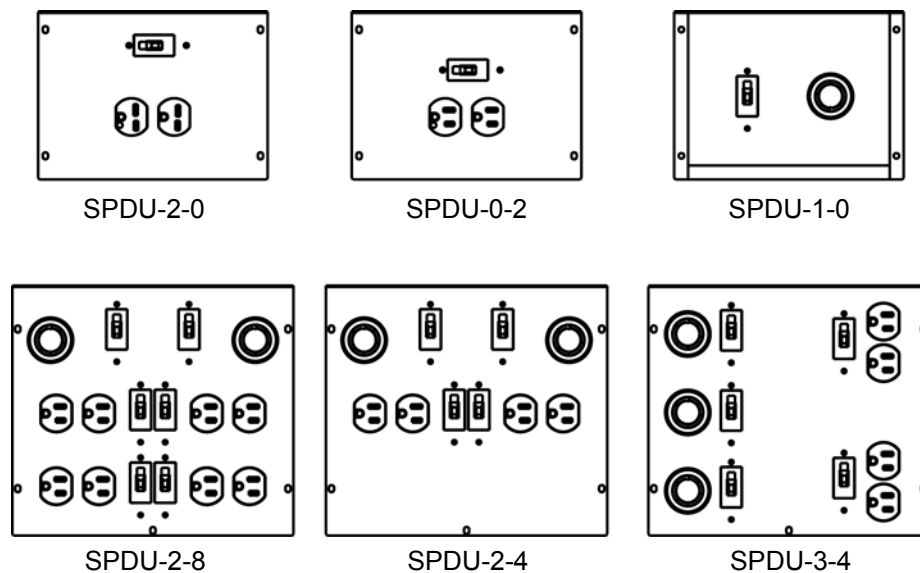


Fig. 36: Optional Power Distribution Units

# CHLORIDE

## POWER PROTECTION

**Chloride Power Protection**

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Lake Forest, IL 60045

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